Claims

1. Front-end circuit for a communication device with a multi-band or multi-band/multi-mode transmission system comprising parallel signal paths connected to a switch (S1, S2) located on the input side, with a filter (F11, F12, F21, F22) being located in each signal path,

- wherein an antenna connector is located on the input side,

- wherein at least two of the signal paths are combined on the output side in an impedance neutral manner into a shared output signal path,

- wherein either one the filters has a high output impedance in the pass-through range of the other filters or wherein impedance adaptation is provided on the output side of at least one of the signals paths, in the shared output signal path or in a parallel branch located on the output side and

- wherein all said components are integrated in a front-end circuit module.

2. Front-end circuit according to claim 1,

wherein an additional switch is provided, which is located in at least one of the signal paths in front of or behind the filter (F21, F22), in the shared output signal path or in a parallel branch located at the output.

3. Front-end circuit according to claim 1 or 2,

wherein the signal paths (RX21, RX22) are reception paths corresponding to different standards and/or mobile radio systems, or are associated with different mobile radio frequency bands.

4. Front-end circuit according to claim 3,

wherein diodes connected in series or shunt diodes are provided for purposes of increasing the isolation of the signal paths in at least one reception path and/or output signal path, which diodes block the corresponding signal path in blocked frequency bands,

wherein the diodes in at least one reception path are connected in front of or behind the filter (F21, F22).

5. Front-end circuit according to claim 4,

wherein the blocked frequency bands block those frequency ranges in which the reception range of at least one of the signal paths configured as a reception path overlaps at least partly with the transmission range of another signal path configured as a transmission path.

6. Front-end circuit for a communication terminal with a multi-mode multi-band/multi-mode transmission system,

having parallel signal paths (RX21, RX22) connected to a switch (S1, 32) located on the input side, with a filter being located in each signal path (F11, F12, F21, F22),

wherein an antenna connector is provided on the input side, with a diplexer connected on the input side, in front of or behind the switch (S1, S2),

wherein one of the signal paths (RX21, RX22) is associated with a first mobile radio system with Frequency Division Multiple Access Multiplex processes and Frequency Division Duplex processes, the first mobile radio system being configured for continuous wave transmission,

wherein this signal path contains a duplexer (DU) having a transmission and a reception element and with the transmitting element being connected behind the switch (S1, S2),

wherein at least two of the signal paths that are not identical with this signal path are associated with a second mobile radio system with Time Division Multiple Access Multiplex processes and Time Division Duplex processes,

wherein all said components of the front-end circuit are integrated in a module.

7. Front-end circuit according to claim 6,

wherein the receiving element (ET) of the duplexer (DU) is connected behind the switch (S1, S2).

8. Front-end circuit according to claim 6,

wherein the receiving element (ET) of the duplexer (DU) is connected in an impedance neutral manner between the diplexer and the switch (S1, S2),

wherein reception monitoring of the first mobile radio system in the operating mode of the first or second mobile radio system is provided.

9. Front-end circuit according to claim 6,

wherein the second mobile radio system is a multi-band system.

10. Front-end circuit for a finished communication device with a multi-band or multi-band/multi-mode transmission system, having parallel signal paths (RX21, RX22) connected to an input, with an impedance transformation network (IT1, IT2) being located on the input side and a filter (F21, F22) on the output side of each signal path (RX21, RX22),

wherein an antenna connector (A1) is present on the input side,

wherein a parallel branch is connected in at least one of the signals paths (RX21, RX22) between the impedance transformation network (IT1, IT2) and the filter (F21, F22), which parallel branch contains a switch for purposes of blocking this signal path (RX21, RX22) for a blocked frequency range.

11. Front-end circuit according to claim 10,

wherein the switch comprises a pin diode or a GaAs switch or a MEMS switch.

12. Front-end circuit according to claim 10 or 11,

wherein an adaptive network (IT1a, IT2a) is located in at least one of the signal paths between the parallel branch and the filter (F21, F22).

13. Front-end circuit according to claim 11 or 12,

wherein an inductance (L1, L2) is connected in series with the pin diode in the respective parallel branch, which inductance, together with the pin diode, constitutes a direct current path, with a capacitor (C1, C2) being connected to this inductance in parallel and in series with the pin diode, which capacitor together with the closed pin diode constitutes a series resonance circuit, the resonance frequency of the series resonance circuit corresponding to at least one frequency in the inhibited frequency range.

14. Front-end circuit according to one of the claims 1 to 13, which is constructed on a support substrate (TS)

15. Front-end circuit according to claim 14,

wherein the support substrate comprises several metallization layers, which are separated from each other by dielectric layers, wherein the impedance transformation network (IT1, IT2), the adaptive network (IT1a, IT2a), the inductance (L1, L2) and/or the capacitor (C1, C2) is at least partly located in the metallized layers.

16. Front-end circuit according to one of the claims 1 to 15,

wherein the filters (F21, F22) are independently selected from among elements operating with acoustic surfaces waves, elements operating with bulk waves, ceramic microwave elements and/or chip LC elements.

17. Front-end circuit according to one of the claims 1 to 10,

wherein the switch (S1, S2) is a GaAs switch or a MEMS switch.

18. Front-end circuit according to one of the claims 15 to 17,

wherein the components of the front-end circuit that are directly connected with each other are electrically interconnected by means of transmission lines (11 to 18),

wherein all components of the front-end circuit and the transmission lines (11 to 18) are integrated in a module.

19. Front-end circuit according to claim 18,

wherein the transmission lines (11 to 18) are configured as line sections in at least one of the metallized layers of the support substrate.